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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,889	11/26/2003	James F. Munro	4484/111	1354

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Nixon Peabody LLP
Clinton Square
P.O. Box 31051
Rochester, NY 14603-1051

EXAMINER	
RATCLIFFE, LUKE D	
ART UNIT	**PAPER NUMBER**
3662	

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/722,889	MUNRO, JAMES F.	
	Examiner	Art Unit	
	Luke D. Ratcliffe	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *See Continuation Sheet 2)* is/are rejected.

7)☒ Claim(s) *215 and 245* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on *26 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claims pending in the application are 1) 197,198,201-203,207-209,212-215,217,219-221,223,224,227,228,231,232,237-239,242-245,247,249-251,253,254,269,273-284.

2) Continuation of Disposition of Claims: Claims rejected are 1) 197,198,201-203,207-209,212-214,217,219-221,223,224,227,228,231,232,237-239,242-244,247,249-251,253,254,269,273-284.

MHz to 80 MHz the common definition of the Nyquist criterion would put the Nyquist rate at 160 MS/s when only 120 MS/s is needed. Therefor even if the sampling frequency was less than the highest frequency in the waveform multiplied by two it can still meet the Nyquist criterion. Using the definition that the applicant uses to define the Nyquist criterion any one of Dornbusch or Watcher can be sampling at less than Nyquist condition and still obtain signals without aliasing. The examiner concludes that the sampling done by the applicant still meets the Nyquist criterion and the claims are claiming an untrue statement which renders the claims indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 197, 198, 201, 227, 228, and 231 are rejected under 35 U.S.C. 102(b) as being anticipated by Dornbusch (5294970).

Referring to claims 197 and 227, Dornbusch shows a method for measuring a parameter of a target including transmitting at least one signal towards a target (figure 4), receiving at least one of a return signal sent in response or the reflected signal (figure 4 and 5), equivalent time sampling of at least one portion of the signal (inherent

with any computer system that samples a signal), and determining a measured parameter based on the amplitude of the signal.

Referring to claims 198 and 228, Dornbusch shows a measured parameter that is distance (column 1 line 60 to column 2 line 5).

Referring to claims 201 and 231, Dronbusch shows the generation of a signal for transmitting (figure 4).

Claims 279-283 are rejected under 35 U.S.C. 102(b) as being anticipated by Wachter (5889490).

Referring to claim 279, Wachter shows a transmission of a coherent burst (column 5 line 1-8), a receiving portion (figure 3), a sampling of at least one portion of the received signal (column 1-3), and determining the distance based on the phase difference between the received and transmitted signal (column 1-5).

Referring to claim 280, its inherent that a signal is generated for the system to work.

Referring to claim 281, Wachter shows the amplification and filtering of a signal received from a target (figure 4 Ref 82).

Referring to claim 282, Wachter shows sampling comprising sampling multiple portions of the received signal and determining further comprises determining the distance based on an average of the phase differences between the transmitted signal and the sampled portions of the received signal column 4-5).

Referring to claim 283, Wachter shows a system that comprises equivalent time samplihg of the received signal (column 4 and 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 197, 202, 228, 232, and 253 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dornbusch (5294970).

Referring to claims 197 and 228, Dornbusch shows a method for measuring a parameter of a target including transmitting at least one signal towards a target (figure 4), receiving at least one of a return signal sent in response or the reflected signal (figure 4 and 5), equivalent time sampling of at least one portion of the signal (inherent with any computer system that samples a signal), and determining a measured parameter based on the amplitude of the signal. It would be obvious to use a sampling frequency that is less than the highest frequency in the wave form because this is possible while still meeting the Nyquist criterion and because it is less complicated to sample at a lower frequency.

Referring to claims 202, 232, and 253, it would be obvious to use a filter to obtain the desired signal for transmission because this is a well-known and common means to obtain a specific signal, this method has no new or unexpected results.

Claim 279 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wachter (5889490).

Wachter shows a transmission of a coherent burst (column 5 line 1-8), a receiving portion (figure 3), a sampling of at least one portion of the received signal (column 1-3), and determining the distance based on the phase difference between the received and transmitted signal (column 1-5). It would be obvious to use a sampling frequency that is less than the highest frequency in the wave form because this is possible while still meeting the Nyquist criterion and because it is less complicated to sample at a lower frequency.

Claims 203, 223, and 232 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dornbusch (5294970) in view of Ohtomo (6450267).

Referring to claims 203, 223, and 232, Dornbusch shows a method for measuring a parameter of a target including transmitting at least one signal towards a target (figure 4), receiving at least one of a return signal sent in response or the reflected signal (figure 4 and 5), equivalent time sampling of at least one portion of the signal (inherent with any computer system that samples a signal), and determining a measured parameter based on the amplitude of the signal. However Dornbusch does not show a method comprising encoding data on the signal for transmitting.

Ohtomo shows a method for filtering a signal and encoding data on that signal (figure 3 Ref 32). It would have been obvious to encode data on a signal for transmission for recognition of the signal at the receiver.

Claims 207-209 and 237-239, are rejected under 35 U.S.C. 103(a) as being unpatentable over Dornbusch (5294970) in view of Wachter (5889490).

Referring to claims 207 and 237, Dornbusch shows a method for measuring a parameter of a target including transmitting at least one signal towards a target (figure 4), receiving at least one of a return signal sent in response or the reflected signal (figure 4 and 5), equivalent time sampling of at least one portion of the signal (inherent with any computer system that samples a signal), and determining a measured parameter based on the amplitude of the signal. However Dornbusch does not show a signal that is a coherent burst modulation waveform.

Wachter shows a method for measuring a parameter of an object that includes a coherent burst modulation waveform (column 18). It would have been obvious to modify Dornbusch to use the coherent burst waveform taught by Wachter because this is a common signal used and adds no new or unexpected results.

Referring to claims 208 and 238, it would be obvious to use a waveform that has a power of less than 5mW and adds no new or unexpected results.

Referring to claims 209 and 239, it would be obvious to use a waveform that has an average power that is less than 1mW and adds no new or unexpected results.

Claims 212 and 242 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dornbusch (5294970) in view of Nakazawa (5751406).

Referring to claims 212 and 242, Dornbusch shows a method for measuring a parameter of a target including transmitting at least one signal towards a target (figure 4), receiving at least one of a return signal sent in response or the reflected signal (figure 4 and 5), equivalent time sampling of at least one portion of the signal (inherent with any computer system that samples a signal), and determining a measured

parameter based on the amplitude of the signal. However Dornbusch does not show amplifying and filtering the received portion of the tranmitted signal back from the target.

Nakazawa shows a method for measuring a parameter of an object that includes amplifying and filtering the received portion of the transmitted signal back from the target (figure 6). It would have been obvious to modify Dornbusch to include the amplifier and filter taught by Nakazawa because this allows the signal to be of a readable magnitude and noise free.

Claims 213, 214, 243, 244, 269, 271, 273, 274, 275, 276, 277, and 228 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dornbusch (5294970) in view of Yamaguchi (5767409).

Referring to claims 213, 243, 269, 271, 273, 276, and 277 Dornbusch shows a method for measuring a parameter of a target including transmitting at least one signal towards a target (figure 4), receiving at least one of a return signal sent in response or the reflected signal (figure 4 and 5), equivalent time sampling of at least one portion of the signal (inherent with any computer system that samples a signal), and determining a measured parameter based on the amplitude of the signal. It would be obvious to use a sampling frequency that is less than the highest frequency in the wave form because this is possible while still meeting the Nyquist criterion and because it is less complicated to sample at a lower frequency. However Dornbusch does not show sampling of multiple portions of the received signal and the determining further comprises determining the measured parameter based on an average of the phase

difference between the transmitted signal and the sampled portions of the received signal.

Yamaguchi shows a method for measuring a parameter of an object that includes sampling of multiple portions of the received signal and the determining further comprises determining the measured parameter based on an average of the phase difference between the transmitted signal and the sampled portions of the received signal (column 1 and 2). It would have been obvious to include the sampling and average phase measurement process taught by Yamaguchi because this is a common way to measure distance from an object and adds no new or unexpected results.

Referring to claims 214 and 244, it would be obvious to sample at least twenty samples of a received signal to obtain a complete sampling of the signal and adds no new or unexpected results.

Referring to claim 274, Dronbusch shows the generation of a signal for transmitting (figure 4).

Referring to claim 275, it would be obvious to use a filter to obtain the desired signal for transmission because this is a well-known and common means to obtain a specific signal, this method has no new or unexpected results.

Referring to claim 278, it is obvious to use Fourier transform to determine the phase difference between the transmitted and received signal because this is a common method to do so and adds no new or unexpected results.

Claims 217 and 247 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dornbusch (5294970) in view of Cahill (6288776).

Referring to claims 217 and 247, Dornbusch shows a method for measuring a parameter of a target including transmitting at least one signal towards a target (figure 4), receiving at least one of a return signal sent in response or the reflected signal (figure 4 and 5), equivalent time sampling of at least one portion of the signal (inherent with any computer system that samples a signal), and determining a measured parameter based on the amplitude of the signal. However Dornbusch does not show determining a phase offset from a baseline wherein the measured parameter is based on the phase offset and the phase difference.

Cahill shows a method for measuring a parameter of a target including determining a phase offset from a baseline wherein the measured parameter is based on the phase offset and the phase difference (column 2). It would have been obvious to use the method of determining a baseline and the distance from the baseline as taught by Cahill because this is a common means of determining distance and adds no new or unexpected results.

Claims 219 and 249 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dornbusch (5294970) in view of Wangler (5870180)

Referring to claims 219 and 249, Dornbusch shows a method for measuring a parameter of a target including transmitting at least one signal towards a target (figure 4), receiving at least one of a return signal sent in response or the reflected signal (figure 4 and 5), equivalent time sampling of at least one portion of the signal (inherent with any computer system that samples a signal), and determining a measured

parameter based on the amplitude of the signal. However Dornbusch does not show using a look-up table to correct for one or more errors in the measured parameter.

Wangler shows a method for measuring a parameter of a target including using a look-up table to correct for one or more errors in the measured parameter (column 11 and 12). It would have been obvious to modify Dornbusch to use the look-up table as taught by Wangler because this is a common means to resolve errors with a signal and adds no new or unexpected results.

Claims 220, 221, 250, and 251 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dornbusch (5294970) in view of Babbitt (5589928).

Referring to claim 220, 221, 250, and 251, Dornbusch shows a method for measuring a parameter of a target including transmitting at least one signal towards a target (figure 4), receiving at least one of a return signal sent in response or the reflected signal (figure 4 and 5), equivalent time sampling of at least one portion of the signal (inherent with any computer system that samples a signal), and determining a measured parameter based on the amplitude of the signal. However Dornbusch does not show determining a refractive index of a medium in which the transmitted signal propagates wherein the measured parameter is based on the refractive index of the medium and the phase difference.

Babbitt shows a method for measuing a parameter of a target that show determining a refractive index of a medium in which the transmitted signal propagates wherein the measured parameter is based on the refractive index of the medium and the phase difference and temperature and pressure readings (column 6 lines 25-60).

Claims 224 and 254 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dornbusch (5294970) in view of Schaffer (5612883).

Referring to claims 224 and 254, Dornbusch shows a method for measuring a parameter of a target including transmitting at least one signal towards a target (figure 4), receiving at least one of a return signal sent in response or the reflected signal (figure 4 and 5), equivalent time sampling of at least one portion of the signal (inherent with any computer system that samples a signal), and determining a measured parameter based on the amplitude of the signal. However Dornbusch does not show a comparing the measured distance against a threshold distance and providing a collision alert when the comparing indicates the measured distance is less than the threshold distance.

Schaffer shows a method for measuring a parameter of a target including a comparing the measured distance against a threshold distance and providing a collision alert when the comparing indicates the measured distance is less than the threshold distance (column 30-58). It would have been obvious to modify Dornbusch to include the threshold and alert taught by Scahffer because this is a common way to make a distance alert for a vehicle and adds no new or unexpected results.

Claim 284 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wachter (5889490).

Referring to claim 284, it would be obvious to use a discrete Fourier transform to determined the phase difference between the transmitted and received signals because this is a common method to do so and adds no new or unexpected results.

Allowable Subject Matter

Claims 215 and 245 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Referring to the claims that were in question as to why they were not examined: Claim 233 was not elected in the original election of species, claims 257-268 only claims 257, 259, 261, 263, 265, and 267 were elected in both election of species depend upon nonelected claims and therefor are nonelected themselves (the office action summary of the non final rejection dated 1/25/06 noted this), claim 270 was not elected, and claims 271 and 278 were elected and are addressed in the non final office action dated 1/25/060.

Applicant's arguments filed 4/27/06 have been fully considered but they are not persuasive. The independent claims all recite that "equivalent time sampling at least one portion of the received signal at less than the Nyquist condition. The specification of the applicants disclosure defines the Nyquist condition as a "waveform is sampled at a rate higher than twice the highest frequency present in the waveform." This is generally accepted as the Nyquist condition because generally a frequency spikes do not occur. However the Nyquist actually said that the sampling rate must be at least double the signal's bandwidth not the signal's highest frequency. For example if there was a waveform that includes frequencies ranging between 20 MHz to 80 MHz the

common definition of the Nyquist criterion would put the Nyquist rate at 160 MS/s when only 120 MS/s is needed. Therefor even if the sampling frequency was less than the highest frequency in the waveform multiplied by two it can still meet the Nyquist criterion. Using the definition that the applicant uses to define the Nyquist criterion any one of Dornbusch or Watcher can be sampling at less than Nyquist condition and still obtain signals without aliasing. The examiner concludes that the sampling done by the applicant still meets the Nyquist criterion and the claims are claiming an untrue statement which renders the claims indefinite. .

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke D. Ratcliffe whose telephone number is 571-272-3110. The examiner can normally be reached on 8:00-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LDR

THOMAS H. TARCZA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600